Health, well-being and nature-based outdoor recreation

Southern Darling Regional Recreation Strategy

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**Introduction**

Recognition that humans benefit through contact with nature is not new. In the late 18th century residents of England's cities were encouraged to take journeys to the Lake District to admire the beauty of nature and experience peace and relaxation. William Wordsworth was instrumental in promoting English nature experiences and by 1850, it was widely accepted "that regular travel through nature was an antidote to the evils of the city" [1]. Later 19th century writers such as Henry David Thoreau and John Muir each strongly advocated appreciation and protection of natural areas [2] with national parks in North America and Australia established to enable people to enjoy nature experiences.

In contemporary society, many people express strong feelings of "nature-friendliness" and recognise the intrinsic value of retaining natural environments [3]. Access to natural areas is an important factor in shaping attitudes and associated values as these are often influenced by experience, learning and culture and there are increasing concerns that erosion of these values could "lead to a deprived and diminished existence" [4]. Expanding populations and ever-increasing urban sprawl means bushland and other natural environments around metropolitan areas are being cleared, with decreasing opportunities for people to experience nature in places near their homes. Participation in nature-based tourism and outdoor recreational activities in national parks, state forests and other protected areas provide the most accessible means for many urban-dwellers to spend time in nature.

This paper explores the health benefits associated with human contact with nature and natural environments. To begin, demand for nature-based recreational and tourism activities is explored. Next relationships between ecosystem services and human health and well-being are discussed and selected literature relating to the physical and psychological health benefits associated with nature-based outdoor activity is reviewed. In the final section, the relevance of these issues within the context of the Southern Darling Region Recreation Strategy project is explored.
Nature-based outdoor recreation and tourism

In western societies, post-WWII affluence and better transport options boosted demand for outdoor recreation. People began to travel away from cities and towns to visit national parks and nature reserves as part of family vacations and summer holidays. At that time, popular activities included driving for pleasure, swimming, hiking and nature walks, sightseeing, picnicking, fishing, bicycling, boating, hunting, camping and horseback riding [5].

In ensuing years, demand for some activities such as hunting and primitive camping declined, though overall interest in outdoor recreation activities continues to grow. Activities with increasing numbers of participants (and participant days) include nature photography, sightseeing, visiting wilderness, developed camping, boating, driving off-road vehicles and canoeing/kayaking. Where once participation in outdoor recreation evoked images of physical exertion, it is increasingly evident that the greatest growth in participation involves activities that are accessible and less physically challenging. Most growth has been observed in participation rates for activities that involve viewing, photographing, visiting and observing elements of nature (>60% growth) [5]. Bushwalking and mountain biking generate strong levels of participation and establishment of purpose-built tracks and trails means that people of all ages and abilities can experience diverse natural environments.

Apart from activity participation itself, the aesthetic appeal of settings where nature-based outdoor recreation occurs is well-recognised. In particular, areas with views of rivers and lakes are often cited as preferred recreational settings and are extremely popular tourist destinations [6-8]. Water-based recreation and tourism activities include sailing, fishing, swimming or water skiing and the experience of bushwalking, camping, sight-seeing or picnicking may be heightened by views of water [7]. People seek landscapes and outdoor places that provide opportunities for enjoyable physical activity, relaxation and restoration, social interaction, cultural connection and spiritual enrichment, contact with nature, and escape from busy urban environments [9].
Ecosystem services, human health and well-being

The World Health Organisation defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” [10] with this definition of health more focused on quality of life rather than diagnosed illness [11]. Within social models of health, community influences, living and working conditions, socio-economic status, social activity and mobility within built and natural environments all play a part in determining individual health and well-being [12].

To achieve sustainable health, the complex links between human health and the health of natural ecosystems need to be considered [13-16]. Material ecosystem services associated with human health include provision of resources (air, water, food), supporting systems (nutrient recycling, soil formation) and regulating changes (climate regulation, water purification) [17]. Despite universal acknowledgment that human life would cease to exist without ecosystem services, most are generally undervalued, as few apart from resource-based industries such as mining, agriculture or forestry generate a quantifiable economic value [18, 19]. Cultural ecosystem services (aesthetic, spiritual, educational and recreational) appear to be most undervalued as their value is often determined by social mores and practice. However, the contribution of cultural ecosystem services to individual and collective physical and mental health is increasingly recognised [20].

Within the model presented here (Figure 1), material ecosystem services (supporting, provisioning and regulating services) are most strongly linked to health. Cultural ecosystem services are also associated with health and good social relations, with freedom of choice and action acknowledged as important constituents of well-being. While the potential health benefits of utilising natural environments as a site for physical activity are well-researched [21-24], psychological health benefits of contact with nature (such as mental restoration, connection to cultural heritage or creating a sense of place) are often taken for granted [25].
The range of benefits that can be derived from use of cultural ecosystem services for aesthetic appreciation, spiritual connection, and participation in educational and recreational activities in natural environments includes:

- enjoying nature and escaping civilisation;
- escape from routine and responsibility;
- creativity and self-improvement;
- relaxation;
- social contact and meeting new people;
- altruism (helping others);
- stimulus seeking;
- self-actualisation (self-improvement and ability utilisation); and
- challenge, achievement and competition [9].

Unfortunately, positive relationships between natural environments and human health often ignored while the negative effects of human interaction with ecosystems receive more attention [25]. In particular, the consequences, threats and risks associated with contamination of drinking water sources are well-documented [26] and questions about the value of recreational access to some natural environments are fiercely debated [26-29]. It critical that natural resource management regimes maximise both ecosystem and human health outcomes [30].
Nature-based outdoor recreation and health

There are many well-accepted general health benefits associated with spending time out of doors. Most specifically, these relate to increased physical activity and decreased stress levels. Low levels of activity and high levels of stress are associated with increased incidence of cardiovascular disease, hypertension, obesity, poor mobility and physical function [31].

In children, there are increasing concerns that lack of opportunities for outdoor play is exacerbating problems associated with obesity, diabetes and attention deficit disorders [32, 33]. The term “nature-deficit disorder” is now being used to describe the potential physical and mental health costs associated with alienation from natural environments [34]. There is also increasing evidence that adult attitudes towards nature are forged through childhood experience [35, 36] and lack of childhood experience may result in disconnection from nature, decline in nature-based recreation and decreased ecological literacy [37, 38].

Emerging research demonstrates synergistic physiological and psychological benefits of “green exercise” with positive effects on blood pressure, self-esteem and mood resulting from exposure to natural environments during physical activity [23, 24]. Other ongoing research results strongly suggests that relationships between access to natural environments are potentially more significant with regard to self-reported mental health and well-being rather than physical health [39, 40].

In medical settings, it has also been shown that post-surgery patients with a view of nature from their hospital bed, recover quicker and require less pain medication [41]. Recognition of nature’s role in providing places for solace and refuge [42, 43] means that ecotherapy (which could be described as nature-based experiential therapy) is now commonly used in treatment of mental health, recovery from addiction and stress-related illness [44]. Links between views of green environments and stimulation of mental cognition have also been observed in experimental studies [42, 43].

Many researchers have attempted to explain our connection and attraction to natural environments. Well-regarded theoretical frameworks that identify beneficial relationships between nature and psychological health include:
• the biophilia hypothesis and connection to nature [45, 46];
• psycho-evolutionary theory and landscape preference [42, 43, 47];
• attention restoration theory [48, 49]; and
• attachment to favourite places [50, 51].

The biophilia hypothesis suggests that people have an innately emotional affiliation to other living organisms (biophilia) and an evolutionary aversion to dangerous aspects of nature such as snakes and spiders (biophobia). The associated emotional spectra moves “from attraction to aversion, from awe to indifference, from peacefulness to fear-driven anxiety” with responses influenced by culture and experience [52].

The idea that evolution plays a role in human-nature response expands into landscape preference. It is suggested that people universally prefer open savannah-like landscapes with views of water. This landscape description is associated with African savannah: the birthplace of humans [42, 43, 53]. The “savannah hypothesis”, makes a direct link between preference for this type of landscape and positive aesthetic and psychological restorative responses. Restorative benefits are closely linked to personal preference for particular environments that promote relaxation and stress relief [54] or provide feelings of security and opportunities for exploration and discovery [55-58]. The main features of preferred landscapes are openness with sufficient trees and other vegetation to provide a sense of mystery and discovery without feeling enclosed or entrapped [48]. Other key features include coherence, mystery and a sense of depth [59].

The development of “attention restoration theory” (ART) [48] complemented early psycho-evolutionary theories (PET) [60]. Theories of “attention restoration” and “effective functioning” are linked to feelings of “being away” or escape, of “fascination” and “compatibility” that are in turn, associated with preferred elements of security, competence, mystery, complexity and coherence within natural environments [48]. Research has consistently found evidence that natural settings enhance psychologically restorative experiences [55, 56, 61-64] with strong relationships between simply viewing nature and the alleviation of mental (or attention) fatigue [48, 49, 65, 66].
Tactile or sensuous experiences, whether physically exploring, touching, smelling or viewing nature are also important factors in developing connection and attachment to specific places [48, 67]. Attachment through regular experience of a favourite place is strongly supported as an beneficial outcome of human-nature contact [51] and psychologists suggest that identification with nature forms an important part of individual identity and self-concept [68]. It is strongly suggested that attitudes and values associated with nature are most often developed through experience: producing emotion, perception and memory, and connections based on aesthetic preference, exploration and attachment [69].

Visitors to favourite places can experience additional restorative benefits through regulation of emotions, feelings and reflection on personal goals. Within studies exploring attachment to favourite place, natural settings are most commonly nominated [50, 51, 70-72]. It is suggested that promoting restorative experiences in favourite places, particularly favoured natural environments, may well be an important factor in primary healthcare [51].

Maximising health benefits may also be related to the richness and diversity of vegetation and wildlife. In a UK study, higher scores for positive feelings of reflection, restoration and emotional attachment were recorded by visitors to places with greater biodiversity and species richness [73]. It is suggested that biodiversity conservation, and consideration of the quality and complexity of natural environments may significantly enhance human well-being.

A recent Western Australian study of relationships between health and urban green spaces found access to useable, well-cared-for green environments positively influenced levels of self-reported general health and vitality [40]. This finding supports the notion that people who enjoy spending time in nature, and regularly visit favoured nearby green places will gain health benefits from improved restoration and relief from stress, and increased physical activity [51]. From a physical health perspective, access to good quality natural environments encouraged physical activity, with green spaces being the most preferred places to be active. In relation to mental health outcomes, time spent in natural environments promoted relaxation and psychological restoration and people reported feeling happier. Access to nearby green environments that provided a variety of experiences and opportunities was considered by participants in this study to be an essential aspect of achieving better health.
Health, well-being and nature-based outdoor recreation

Relevance to the Southern Darling Regional Recreation (SDRRS) project

The Southern Darling Region provides an extensive range of nature-based outdoor recreation and tourism opportunities. Several bushland sites areas near the towns of Dwellingup, Pinjarra, Harvey and Collie provide ample opportunity for people to participate in bushwalking, mountain biking, camping and nature appreciation. As examples, the Bibbulmun Track (a 1000km walking track from Kalamunda to Albany) and the MundiBiddi Trail (a 500km mountain bicycle trail from Mundaring to Nannup) both cross through the region. Lane Poole Reserve near Dwellingup provides camping facilities and access to the Murray River for water-based activities. Dam sites near Jarrahdale, Pinjarra, Harvey and Waroona are selectively used for picnics, water skiing, camping, fishing, boating and paddling. Appropriate settings for school camps, outdoor and environmental education activities, adventure training and ecotherapy are available at established camping and accommodation facilities near Dwellingup, Waroona, Logue Brook Dam and Wellington Dam.

It cannot be questioned that these recreational opportunities provide physical and mental health benefits to metropolitan and nearby regional populations. It also cannot be questioned that continued access to natural environments for people living in Perth’s planned southern growth corridor will be imperative to optimising potential health benefits. Planned urbanisation of the Peel Region – the area between the Southern Darling Region and the coast – has a current population of 88,000 that is expected to include an additional 45,000 new residents by 2031 [74]. To meet demand for housing, it is very likely that substantial areas of bushland and other natural environments will be cleared [75] and residential density will increase [74].

As suggested in earlier sections, access to nearby natural environments means that people can – and will – visit preferred places. Current development practices in peri-urban areas strongly indicate that residents have less access to green places near their own neighbourhoods and need to travel outside of their local area to experience bushland and other natural environments [40]. It is further suggested that current patterns of urban development disadvantage more marginalised

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1 Unreferenced examples in this section are derived from the author’s knowledge and experience. A comprehensive mapping exercise of recreational activity sites was undertaken as part of the SDRRS project and readers are asked to refer to this document for more information. Nominated activity sites are presented as selected examples only.
populations and there is emerging evidence that lack access to natural environments, particularly for people with lower incomes and minorities, may exacerbate health inequalities [76, 77].

With this in mind, the need to optimise potential nature-based health benefits for current and future Peel Region residents becomes evident. Census data for the Peel region shows that current proportions of young people (aged under 15), people born overseas, people who work in trade or technical occupations, families with children, and people paying off their home, are substantially higher than average populations throughout Australia [78].

Based on demographic patterns observed in other peri-urban areas, it is assumed that, with development plans for this region including affordable housing projects on government-owned land, the current proportions of single or low-income families with children will increase. In addition, other factors such as clearing of remnant bushland and other natural environments, smaller house block size and less useable public open space will influence demand for low-cost, accessible outdoor recreational opportunities. As such, it is also reasonable to assume that potential health inequalities related to income, family status or age may be exacerbated without public access to well-managed, well-designed and useable nature-based outdoor recreation settings and activity sites in the Southern Darling Region.

With mounting evidence of positive relationships between human health and contact with nature, it is imperative that potential public health outcomes are considered within natural resource management and recreation planning. Development of recreational and tourism infrastructure and management systems that enable people of all ages and abilities to experience natural environments are important factors in maintaining community health. Connections between ecosystem services and health determinants and natural must be considered to avoid loss of opportunities to enrich physical and mental well-being.
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